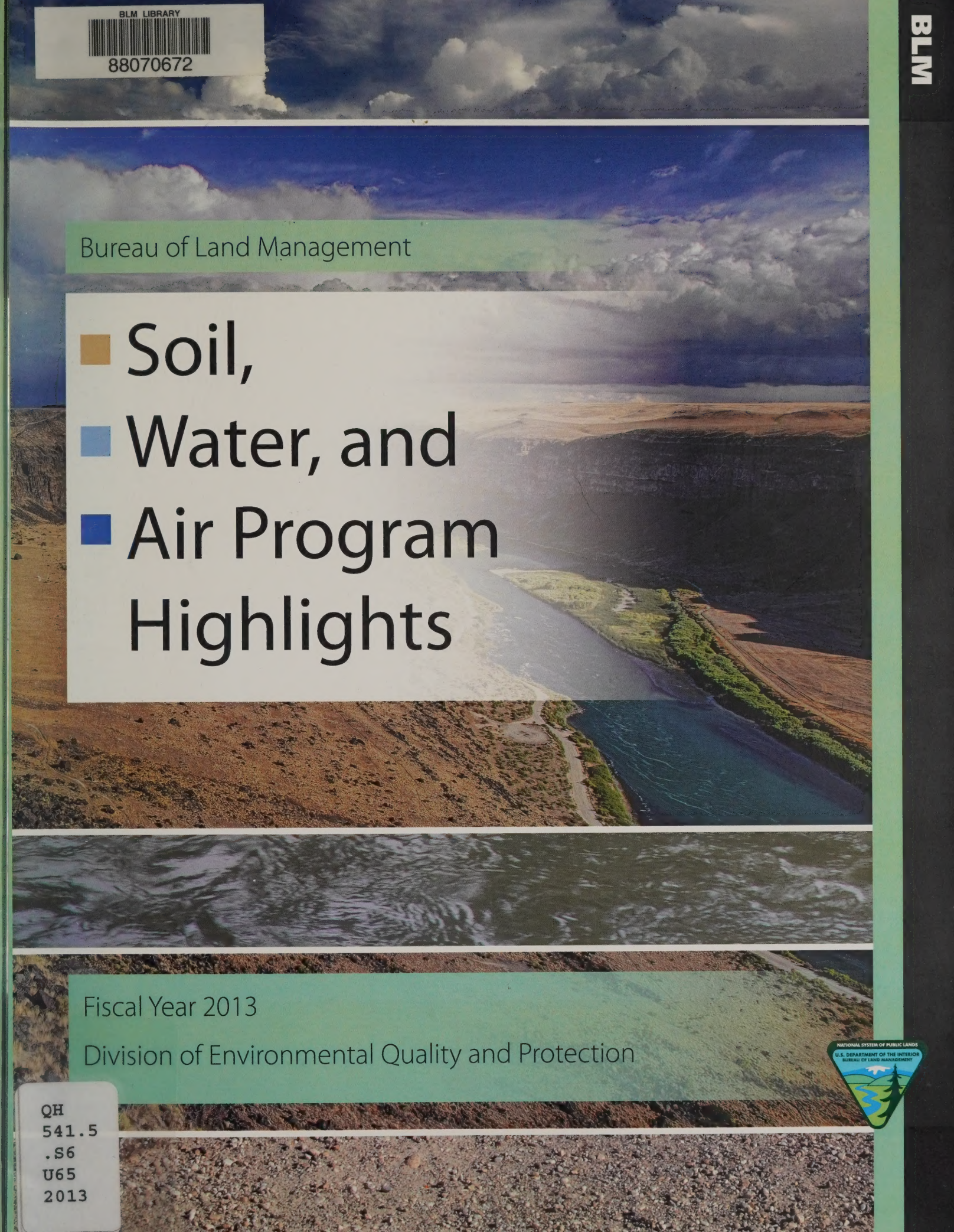




Bureau of Land Management




# ■ Soil, ■ Water, and ■ Air Program Highlights

Fiscal Year 2013

Division of Environmental Quality and Protection

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## BLM Mission

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# Introduction

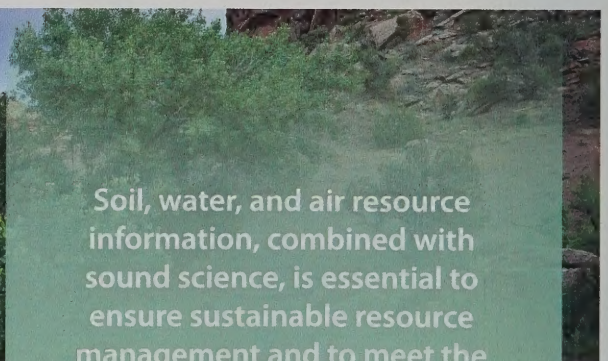
The Bureau of Land Management (BLM) manages more than 245 million acres of public land—the most of any federal agency. This land is primarily located in 12 western states, including Alaska. The BLM's multiple-use mission is to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations. The BLM accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production and by conserving natural, historical, cultural, and other resources on public lands.

The most fundamental natural resources on BLM public lands include soil, water, and air:

- **Soils** provide the foundation for vegetation and biotic communities; sustain healthy and productive rangelands, woodlands, and other areas; safeguard water and air quality; and support many other resource uses on public lands managed by the BLM.
- **Water** of sufficient quality and quantity is integral to the successful management of public lands managed by the BLM. Clean and adequate supplies of water are necessary to promote healthy watersheds, provide fish and wildlife habitat, maintain drinking water sources, allow safe recreational use of surface water, and maintain healthy plant communities and wildlife habitats.

- The BLM manages **air resources** to ensure that the uses the BLM initiates or authorizes on public lands are consistent with the federal, state, local, and tribal regulatory framework under the Clean Air Act. The BLM uses the National Environmental Policy Act process to analyze the potentially significant environmental impacts of its proposed actions on air resources (and other resources) and to select appropriate measures to mitigate adverse impacts. These steps enable the BLM to continue authorizing diverse land uses on public lands while protecting air resources and preparing for new challenges.

Many BLM management decisions have the potential to affect soil, water, and air resources. Therefore, the BLM requires reliable and readily accessible soil, water, and air resource information. This information, combined with sound science, is essential to ensure sustainable resource management and to meet the BLM's multiple-use mission. This document presents some fiscal year 2013 highlights of the BLM soil, water, and air program and the types of projects the program undertakes.



Soil, water, and air resource information, combined with sound science, is essential to ensure sustainable resource management and to meet the BLM's multiple-use mission.

# Soil

## BLM and NRCS Conduct White Mountains Soil Surveys - Alaska

In 2011, BLM Alaska contracted with the Natural Resources Conservation Service (NRCS) to conduct soil surveys on approximately 2.2 million acres of the White Mountains National Recreation Area and the Steese National Conservation Area. The Alaska soil survey team had combined ecological site descriptions with the soil survey for more than 15 years, so each field team is composed of a soil scientist and a botanist or ecologist. In 2012 and 2013, the BLM soil program provided an additional soil scientist and/or botanist to allow the Alaska soil survey team to complete an additional 50

percent of their planned work. The University of Alaska at Fairbanks School of Natural Resources and Agricultural Sciences was also interested in the soil and contributed a soil scientist to assist with some of the field work and to review and advise on the soil taxonomy in the field and during the review of this work. This collaboration provided benefits for both agencies and the university. It also permitted the teams to collect additional data on tree diameters and distribution to help with a preliminary forest inventory.



BLM Alaska soil survey team members Eric Geisler (soils and forestry) and Aliza Segal (botany) characterize a boreal forest site. The soil profile, ecological site description, and timber stand data were collected at each plot.



This soil profile photo in permafrost soils shows the type of work performed by the BLM Alaska soil survey team. This particular field work involved studying insulation and thawing of permafrost in mineral-rich soil.

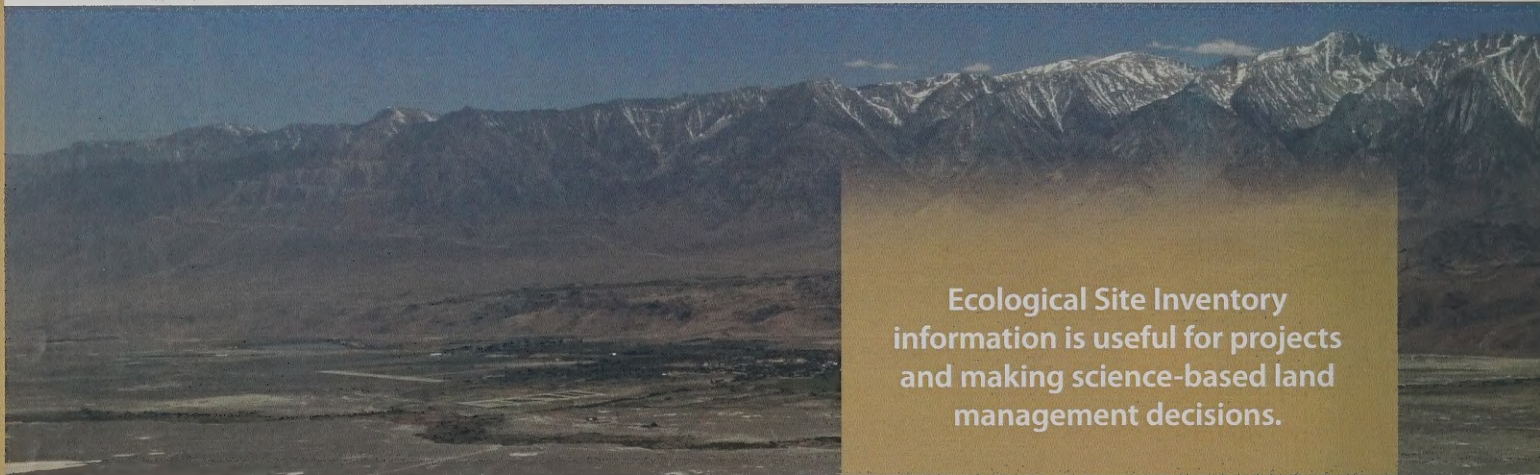
## BLM Holds Ecological Site Description Training - Nevada

In cooperation with the Great Basin Institute, BLM Nevada held a 3-day training course on how to interpret and use ecological site descriptions (ESDs) in the field. ESDs are reports that provide characteristics, such as soil and vegetation type, about a particular unit of land. ESDs can be used to portray land units that share characteristics, allowing land managers to make more informed decisions and respond to land management activities or land disturbance.

The course helped BLM and Great Basin Institute employees understand how to incorporate ESDs in project development, as well as in everyday evaluation and management of BLM rangelands. In addition to classroom presentations, the course offered a field component that provided hands-on learning.



The field component of the ecological site description training held by BLM Nevada and the Great Basin Institute.



**Ecological Site Inventory information is useful for projects and making science-based land management decisions.**

## Quality Control Performed on Soil and Ecological Site Inventory Data - Oregon

In 2013, the BLM Oregon soils program worked closely with the Natural Resources Conservation Service (NRCS) to conduct quality control on more than 240,000 acres of previously collected soil mapping and Ecological Site Inventory data for Crook County, Oregon. The BLM and NRCS

ensured the data was consistent with National Cooperative Soil Survey standards and ensured proper entry into the local database. Ecological Site Inventory information is useful for projects and making science-based land management decisions.

## Ecological Site Inventory Data Used for Fire Rehabilitation Effort - Oregon

The BLM Oregon Vale District used Ecological Site Inventory data to plan target seeding areas for emergency stabilization and rehabilitation efforts on more than 885,000 acres. The 2012 fire season had a major impact on the district, with 26 separate fires. Approximately 82 percent of the affected acres are considered sage-grouse habitat. To address the affected habitat, emergency stabilization and rehabilitation plans for these areas indicated

seeding was needed in order to stabilize soils. Ecological Site Inventory data was used, where available, to target seeding areas with the highest potential for success in order to prioritize resources. The remaining areas will rely on natural vegetation for recovery and are being monitored for progress. By using Ecological Site Inventory data, the BLM saved approximately \$6.3 million during the fire rehabilitation effort.



Prefire vegetation along an unnamed stream in the BLM Oregon Vale District.



Postfire vegetation in the same area in the BLM Oregon Vale District.

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By using Ecological Site Inventory data, the BLM saved approximately \$6.3 million . . .

# Water

## Disappearing Arctic Lakes: BLM Alaska Monitors Changes in Lake Todatonten – Alaska



Lake Todatonten at high water level in June 2013. View is northwest, low altitude, with outlet at far left of photo.

In cooperation with the U.S. Fish and Wildlife Service and the University of Alaska at Fairbanks, the BLM Alaska Fairbanks District soil, water, and air group is monitoring seasonal changes in water level, water quality, lake surface area, and discharge at Lake Todatonten. This 3,500-acre shallow lake sits within the Lake Todatonten Special Management Area in north-central Alaska. The lake provides important rearing and staging habitat for waterfowl, particularly greater white-fronted geese.

In 2007, a U.S. Fish and Wildlife Service biologist reported the lake depth had decreased substantially over the past few years and voiced concern that the lake may soon disappear. Continued Arctic warming may be causing a decrease in the number and size of Arctic lakes, reducing prime breeding habitat for waterfowl. Shallow subarctic lakes are especially susceptible to the effects of climatic change because of their relatively low water volumes and high surface area to depth ratios.



Lake Todatonten at low water level in September 2009. View is northwest, high altitude, with outlet at far left of photo.

Documenting changes in surface area, discharge, and water quality parameters of temperature, conductivity, pH, dissolved oxygen, and turbidity are fundamental to developing a better understanding of the rapid ecosystem changes on BLM-managed lands in Alaska. Automated equipment is used to record lake levels and water quality parameters at 1-hour intervals at Lake Todatonten, typically from June to September. Results from 2009 through 2013 strongly correlated with local climate. Water levels varied from about 6.5 feet in spring, during snowmelt, to about 2.5 feet in late fall. The lake is frozen to the bed in winter.

According to University of Alaska at Fairbanks researchers, "The changing lakes are a consistent, measurable indication of the overall changes to hydrology in the Arctic. The loss of surface water will inevitably impact local ecosystems, which will have a cascading effect. Changes could include loss of migratory bird habitat, resulting in an effect on subsistence activities, as well as changes to local and regional atmospheric conditions, including more localized wind and more frequent and more severe wildland fires."



Lake Todatonten outlet at bankfull in May 2013. View is west, looking downstream.

## Jack Wade Dredge Hull Removal - Alaska

In September 2013, the BLM removed a hull from a historic gold-mining dredge on Jack Wade Creek, which is part of the Fortymile Wild and Scenic River corridor. The BLM also backfilled and contoured the excavated dredge site. In 2007, the Jack Wade dredge

was dismantled and removed due to public health and safety concerns. However, the hull remained embedded in the stream. After the work was complete, the BLM monitored the water quality to avoid adverse impacts to Jack Wade Creek fisheries or aquatic environments.

Jack Wade dredge on Jack Wade Creek in a pre-2007 BLM photograph.



Jack Wade dredge excavation site after hull removal in September 2013.



Jack Wade dredge hull covered by debris (center of photo) in 2012.

## Mittry Lake Restoration, Rehabilitation, and Salinity Reduction Projects - Arizona

In 2013, the BLM Arizona Yuma Field Office continued restoration and rehabilitation projects around Mittry Lake, including 160 acres of ongoing restoration, with plans to expand another 265 acres. Mittry Lake is located along the lower Colorado River between the Imperial and Laguna Dams. These projects, along with surrounding partnering restoration projects, will create the largest amount of continuous native riparian habitat along the lower Colorado River.

The Mittry Lake restoration and rehabilitation projects include subunits identified as Betty's Kitchen, Pratt Nursery, Mittry South Trees, Mittry South Moist Soil Units, and Mittry South Expansion. In addition to the BLM soil, water, and air program, the projects are jointly

funded by the following BLM program areas: riparian, wildlife, emergency stabilization and rehabilitation, weeds, and threatened and endangered species. The following partners contribute to the current and future success of these projects: Bureau of Reclamation, Bureau of Indian Affairs, Quechan Indian Tribe, Arizona Game and Fish Department, Arizona State Forestry Division, Arizona State Land Department, Northern Arizona University, Arizona Western College, Yuma Audubon Society, Arizona Native Plant Society, local Boy Scouts, and U.S. Customs and Border Protection. Some restoration and rehabilitation efforts include native seed and tree planting, mechanical and chemical invasive species treatments, leaching using flood irrigation, and soil salinity testing.

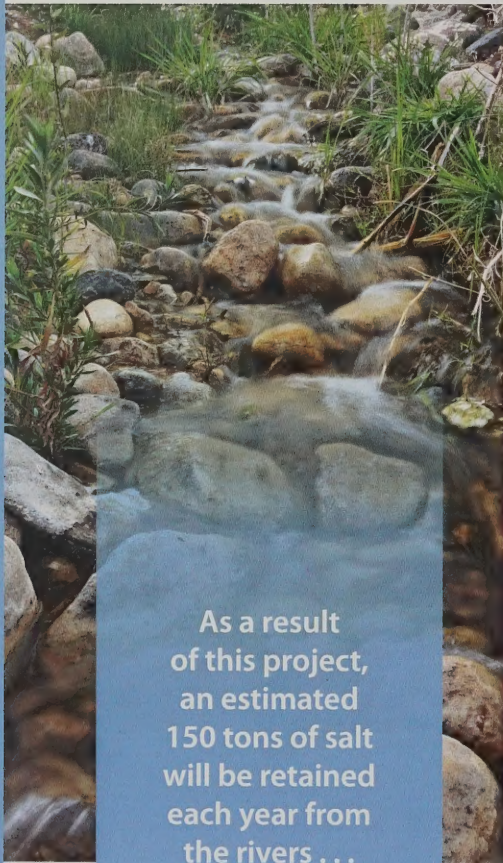
## Little Clayhole Salinity Control Dike Repair - Arizona

In 2013, BLM Arizona repaired a breach behind the armored spillway of a large dike/detention dam that is the base structure for the Little Clayhole dike system. The dike system supports eight other smaller dikes in trapping flood waters and saline sediments from the 65,000-acre Little Clayhole watershed.



Eroding spillway and dike.

The BLM repaired the breach using a gravel key to prevent future piping, added cobbles and stones in a large gabion to thicken the armor along the bedrock spillway, cleared tamarisk from the eroding top, and then raised and widened the top so it can withstand peak flows. The BLM also filled a small sinkhole about 50 meters south and upstream of the dike. The BLM completed this project in compliance with the Colorado River Basin Salinity Control Program, which encourages the BLM to reduce salt contributions into the river from public lands. Clayhole Wash runs into the Virgin River, which empties into Lake Mead. As a result of this project, an estimated 150 tons of salt will be retained each year from the rivers by trapping saline sediment from eroding soils. Project work will also detain saline water, allowing for aquifer recharge, salt precipitation, and the secondary benefit of the establishment of some riparian wildlife habitat.



As a result of this project, an estimated 150 tons of salt will be retained each year from the rivers ...



Gabion armor lining the spillway.

## BLM Water Rights in the Owyhee Canyonlands Wilderness - Idaho

BLM Idaho continued to work with the U.S. Geological Survey (USGS) to develop a long-term streamflow monitoring plan for wild and scenic rivers within the Owyhee Canyonlands Wilderness in southwestern Idaho. From February to September 2012, the USGS periodically measured streamflow at 14 monitoring sites in the Big and Little Jacks Creeks, Bruneau River, Jarbidge River, and Owyhee River basins. From this data, the USGS computed streamflow statistics, which the BLM used to develop and file draft federal reserved water rights claims. The claims will ensure adequate streamflow to protect the rivers' "outstandingly remarkable values"—specifically fish and wildlife habitat, scenic and geological features, and recreational opportunities. The BLM determined that the daily mean streamflow equaled or exceeded 20 to 80 percent during bimonthly periods (two periods per month), and the bankfull streamflows are important streamflow thresholds for maintaining outstanding remarkable values. The computed streamflow statistics are considered the best possible estimates given available datasets in the remote study area.



The full report can be found at:  
<http://id.water.usgs.gov/projects/OwyheeStreamflowStatistics/index.html>.



## Stream Channels Reestablished After Flooding - Montana

In 2013, the BLM Montana Lewistown Field Office monitored restoration work on Montana streams and floodplains and planned for further improvements. In 2011, flooding caused extensive damage to several central Montana streams. One such location was Armells Creek in the Judith Mountains. During this historic event, there simply was not enough room in this narrow valley bottom for both the stream and the road. The most significant damage occurred where a culvert became plugged, shifting the stream from one side of the road to the other. This caused extreme erosion and sediment production. In 2012, the channel was put back in its original location, and the

old road and gully were "regraded" to create a floodplain.

In all, the Lewistown Field Office removed a mile of this valley bottom road (including 12 culverts), reestablished several sections of stream channel, and established new floodplains where feasible. In 2013, the area experienced additional flooding, but the added resiliency enabled the stream to process the high flows with little impacts. The field office is growing native plants to support extensive floodplain and bank planting scheduled for 2014.



Armells Creek before restoration.



Armells Creek after restoration.

## Salinity Control Program Collaborates with USGS to Develop Sediment Portal - National Operations Center

The salinity control program coordinator at the BLM National Operations Center in Denver, Colorado, collaborated with the U.S. Geological Survey to develop a new online, interactive sediment data portal. This data portal represents the best available compendium of suspended sediment data for streams and rivers across the nation.

The portal provides easy access to valuable long-term datasets that can be useful in assessing how landscape modifications and management decisions affect sediment

transport in streams and rivers, which can help identify appropriate and cost-effective sediment monitoring methods. Watershed managers, policymakers, researchers, and the public can use the portal to access suspended sediment information for more than 4,900 sites. From the portal, users can also download sediment data and ancillary data on streamflow condition, sediment grain size, sampling method, and landscape condition.

For more information, visit <http://cida.usgs.gov/sediment/>.

## Stream Gauge Installed on Beaver Creek - Nevada

In October 2013, the BLM Nevada Elko District and the U.S. Geological Survey installed a new stream gauge on Beaver Creek in northeastern Nevada. Beaver Creek has never been gauged before. The Beaver Creek watershed offers a unique opportunity for a BLM watershed management case study. The watershed encompasses 118,000 acres, is 94 percent public land administered by the BLM, contains 70 miles of perennial streams, and has no diversions.

Good watershed health is crucial to the fish and wildlife that depend on this ecosystem. Most of the watershed is mapped as priority habitat for greater sage-grouse, a candidate for listing under the Endangered Species Act. Streams in the watershed are also historic habitat for Lahontan cutthroat trout, a federally listed threatened species. The stream gauge will



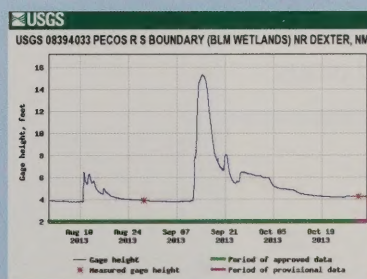
provide information regarding changing flow regimes of Beaver Creek and will help the BLM to better understand watershed characteristics and make and monitor management decisions.

## Pecos River Gauges Help Water Budget Development - New Mexico

The BLM New Mexico Roswell Field Office funds two river gauges on the Pecos River, one above and one below the BLM Overflow Wetlands Area of Critical Environmental Concern (ACEC). The U.S. Geological Survey operates the river gauges, which collect waterflow data. The BLM is monitoring the waterflow data from

the gauges to develop a water budget for the Overflow Wetlands ACEC. A water budget provides scientific measurements and estimates of water movement. A water budget can help determine how much water is available for different uses and where potential shortages exist or are developing.

A river gauge captures waterflow data of a flood event on the Pecos River near the south end of the BLM Overflow Wetlands Area of Critical Environmental Concern in September 2013.



This U.S. Geological Survey hydrograph shows a maximum gauge height of 15.27 feet, which happened during a September 2013 flood event.

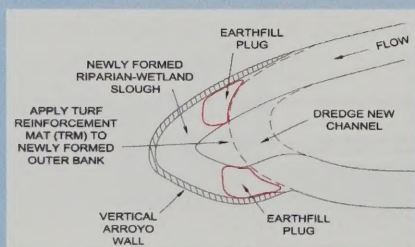
## Rio Puerco Bank Stabilization - New Mexico

An evaluation of extensive bank stabilization efforts that were completed in 2009 along the Rio Puerco shows successful results. The BLM conducted the efforts as a result of several 35-foot-high arroyo walls along bends of the Rio Puerco that eroded large amounts of sediment in the river near Cabezón, New Mexico. The bends in the arroyo walls continued to cut outward with no sign of stopping. Left unstabilized, it was predicted that one of the bends would have formed a meander cutoff that would bypass about 2,000 feet of river channel and its floodplain.



The site of the Rio Puerco bank stabilization efforts before work efforts began.

To stop the retreat of the arroyo walls, the BLM redirected the river and created a riparian/wetland slough in the abandoned channel at the foot of the arroyo wall. The project was completed in March 2009 with the application of turf reinforcement mat—which helps establish and reinforce vegetation—on the outside banks of the newly excavated stream channels and earthfill plugs.



The design idea for the Rio Puerco bank stabilization.



The Rio Puerco bank stabilization efforts underway.

The repositioning of the active channel away from the foot of the arroyo wall has resulted in the elimination of the undercutting of the arroyo walls and the mass failures into the river. After three growing seasons, the native willow rootstock has colonized the turf reinforcement mat and has induced sediment deposition. The sloughs are colonizing with willows, and in two of the sloughs where the water table is highest, cattails have appeared. No planting was required due to the root sprouting of the native willow community in this reach of the river.



Vegetation colonization along the Rio Puerco after bank stabilization efforts.

## BLM Assists with Basque Station Flooding - Oregon

As a result of heavy rains and a wildfire, the BLM Oregon Vale District and the Oregon Department of Transportation (ODOT) cleaned portions of the main channel of Crooked Creek, thus increasing the creek's capacity to transport water. Following heavy rains on July 4, 2013, flows left the main channel of Crooked Creek and flooded two homes at the Basque ODOT maintenance station in Malheur County, Oregon. Over time, and partly due to

the Holloway Fire, the main channel of Crooked Creek filled with ash and sediment, reducing its capacity to transport water. In response to a request from the ODOT, the BLM helped clean portions of the channel located on BLM lands. The Vale District staff completed the necessary environmental clearances and provided seed for the project, while the ODOT provided the necessary equipment and workforce.

Before the  
channel work.

Oregon Department of Transportation



After the  
channel work.

Oregon Department of Transportation



## Hydrologic Rock Weir Eases Access to the North Fork of the Shoshone River - Wyoming

The BLM Wyoming Cody Field Office partnered with the Wyoming Game and Fish Department to construct a custom hydrologic rock weir structure on the North Fork of the Shoshone River to allow easier public access to the river. The North Fork of the Shoshone River is a blue ribbon trout fishery and originates in Yellowstone National Park. The river also provides visitors with very diverse and beautiful scenery as it leaves the park and flows through U.S. Forest Service, private, and BLM lands.

In 2006, in response to increasing demand for public access to water-based recreation, the Cody Field Office and the Wyoming Game and Fish Department installed a boat ramp at the North Fork Shoshone Access, a publicly owned parcel of land administered by the BLM. The boat ramp, due to its placement, proved to be a safety concern and very difficult to use while taking boats out because of the lack of current relief at and upstream of the ramp.

To address the situation, members of the Cody Field Office and the Wind River/Bighorn

Basin District hydrologist consulted with the Shoshone National Forest hydrologist, who had previously constructed stream channel stability structures several miles upstream of the forest. The BLM then designed a structure to reduce the water velocity near the streambank and to provide the slack water needed to facilitate safe ingress/egress for people floating the river. The structure was also designed to enhance fish habitat for trout and other fish species in the river.

The BLM received approval from the U.S. Army Corp of Engineers and the Wyoming Department of Environmental Quality. The Wyoming Game and Fish Department provided the equipment and labor needed for the construction and hauling of the rock required for the project. The structure survived the 2013 spring runoff, and the BLM has received numerous compliments from members of the public who use the North Fork Shoshone Access site.



Project construction of the hydrologic weir at the North Fork Shoshone Access.



The completed hydrologic weir at the North Fork Shoshone Access.

## Wyoming Water Program Assists Programs and Partners - Wyoming

The BLM Wyoming High Desert District water program assisted many other programs and entities in 2013, which significantly enhanced the effectiveness of the water program. The High Desert District's water program provided assistance to the Wyoming Department of Environmental Quality, Wyoming County Conservation District, and Wyoming Landscape Conservation Initiative in their efforts to address impaired waters that are undergoing the total maximum daily load process. The total maximum daily load is a calculation of the maximum amount of a pollutant that a body of water can receive and still safely meet water quality standards. The district water program provided technical review, sampling system operation, and coordination between agencies, corporations, and individuals. These efforts were conducted on tributaries to the Green and Colorado Rivers (Bitter Creek, Blacks Fork, and Smiths Fork) and the Bear River.



This bacterial monitoring site is maintained by the Wyoming Department of Environmental Quality and the Sweetwater County Conservation District, with assistance from the BLM.



# Air

## Preparation for Meteorological Site Installation in the Arctic - Alaska

BLM Alaska contracted with AECOM in July 2013 to establish a meteorological monitoring station in a remote location of the National Petroleum Reserve in Alaska (NPR-A). The site was selected to provide meteorological information for the BLM and other agencies that have a study interest in the NPR-A.

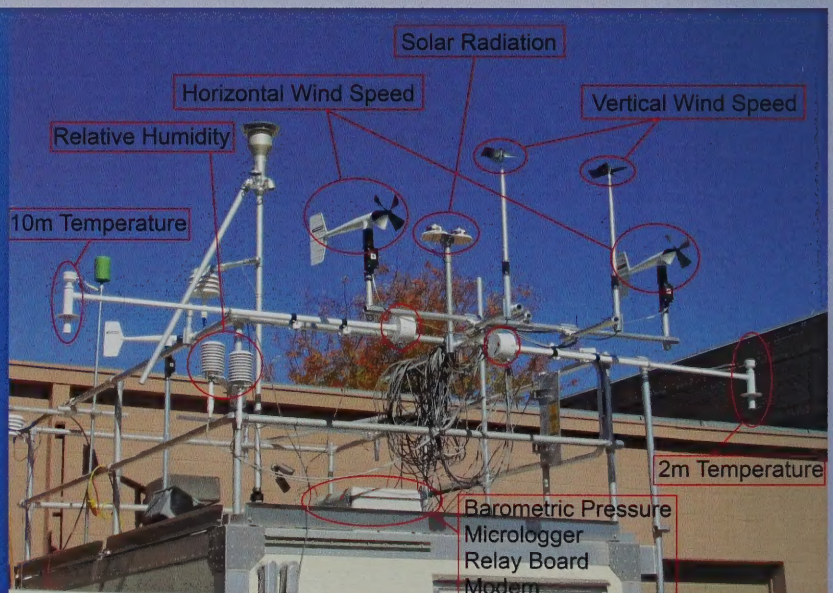
Prior to contracting the project, BLM Alaska worked cooperatively with BLM National Operations Center air resource specialists and meteorologists from the Alaska Department of Environmental Conservation, Environmental Protection Agency Region 10, University of Nebraska, and University of Alaska at Fairbanks to determine an appropriate location to represent a larger area of likely near-term oil and gas development.

The intent of the station is to collect meteorological data with a high degree of versatility and application potential. The BLM intends to share the data with other agencies or scientists conducting studies in northern Alaska that could benefit from this dataset. To this end, it is intended that the dataset will be useful for photochemical modeling, far field air quality assessment, and dispersion modeling of potential development in the region, including near field impact analyses, comparison of real-time data with modeled meteorological data, biological and ecological studies, and climate change analyses.



BLM contractor AECOM transports equipment across the frozen, roadless tundra to the Inigok field camp in the National Petroleum Reserve in Alaska.

This photo shows the full meteorological system components assembled for quality assurance testing before meteorological station deployment.



## Work on Off-Highway Vehicle Road Improves Air Quality - Arizona

To help improve air quality, the BLM Arizona Hassayampa Field Office performed work on an off-highway vehicle staging area road in the Table Mesa Recreation Area in fiscal year 2013. The BLM completed the road work to comply with the Maricopa County Air Quality Division and the Arizona Department of Environmental

Quality air pollution regulations. With coordination from the Arizona Off-Highway Vehicle Coalition, the BLM treated the road with Durasoil (a liquid dust suppressant) and EMC<sup>2</sup>, (a soil stabilizer that hardens roads). The result is a hard, pavementlike gravel road that produces much less dust than native soil.



Close-up photo of the off-highway vehicle road before treatment. The native soil is the consistency of talcum powder.



Close-up photo of the off-highway vehicle road after treatment with an ABC gravel mix and EMC<sup>2</sup>.

## BLM Colorado Continues Interagency Agreements to Collect and Analyze Data - Colorado

The National Park Service continued working with BLM Colorado through an interagency agreement to assist the BLM in the operation and maintenance of air quality stations in Meeker and Rangley, Colorado. These stations have been instrumental in improving modeling efforts, as well as in determining potential impacts from coal, oil, and gas development. BLM Colorado is in the process of adding a third station near Cañon City, Colorado. The BLM shares the data from these stations with the State of Colorado and the Environmental Protection Agency.

BLM Colorado also continued to work cooperatively with the University of Illinois to collect data at two National Atmospheric Deposition Program (NADP) sites in Colorado—one near Craig and one near Walden. The station near Craig recently celebrated a 30-year anniversary. The NADP is a cooperative effort between federal, state, tribal, and local governmental agencies; educational institutions; private companies; and nongovernmental agencies to measure atmospheric deposition and study its effects on the environment.

## Interagency Workshop on the Air Quality Memorandum of Understanding - National Operations Center

In May 2013, interagency representatives attended at 2-day workshop in Denver that covered the Air Quality Memorandum of Understanding (MOU). The audience included representatives from the five MOU signatory agencies—the BLM, Environmental Protection Agency, National Park Service, U.S. Fish and Wildlife Service, and U.S. Forest Service. All agencies coordinated to organize the event; however, BLM National Operations Center (NOC) air resource specialists played a key role in developing the workshop agenda and in giving presentations.

The purpose of the Air Quality MOU, which was signed in June 2011, is to provide a framework for conducting air quality and air quality related value analyses for federal decisions related to oil and natural gas planning, leasing, and development. The purpose of the workshop was to provide an introduction to the Air

Quality MOU, discuss critical elements of the MOU processes (common procedures, technical workgroups, conflict resolution, etc.), and work through group exercises and examples.

The audience included 56 air resource and natural resource specialists, environmental planners, managers, and others, and 36 representatives participated via video conference. For those people who could not attend the workshop, a series of three webinars were planned and delivered, with NOC air resource specialists as primary presenters.

As a result of MOU requirements, the NOC subsequently provided air modeling support throughout fiscal year 2013 to several state offices that did not have air modeling capabilities for the preparation of resource management plans/environmental impact statements.

**The reusability of the data will result in significant cost and time savings for all parties involved.**



## WestJump Air Quality Modeling Study Complete - National Operations Center

The 2-year “West-wide Jump-start Air Quality Modeling Study,” funded by the Washington Office, was completed in September 2013 through a cooperative agreement with the Western Governors’ Association. The study involved many consultants and universities and required much coordination from the BLM National Operations Center for successful completion.

Some of the areas the study focuses on include: ozone and particulate matter transport and

attainment demonstrations, regional modeling to support air quality planning, and regionally complete and consistent emissions and air quality modeling. Study results are expected to be used by numerous federal and state agencies, as well as private sector contractors and industries. The data from this study will be reusable for permit applications and resource management plans/environmental impact statements. The reusability of the data will result in significant cost and time savings for all parties involved.

## Cliffside Air Quality Compliance and Greenhouse Gas Emissions Reduction Opportunities - Texas and New Mexico

In March 2013, the BLM New Mexico State Office air quality specialist and BLM Cliffside Helium Enrichment Unit in Texas participated in a weekly process to determine and track actions to ensure the enrichment unit is in full compliance with state and federal air quality regulations. Earlier in the year, an audit through the Compliance Assessment – Safety, Health, and the Environment process identified 17 findings in which action was required for the enrichment unit to comply with air quality regulations and statutes. A plan of action has been developed for each finding, and the enrichment unit is in the process of resolving all remaining issues.

Additionally, the BLM New Mexico State Office and the Cliffside Helium Enrichment Unit initiated a study in 2013 to identify opportunities for energy efficiency and renewable energy use at the enrichment unit and the Cross Bar Ranch. The study will enable

the BLM to determine where greenhouse gas emissions from the facility can be reduced in accordance with Executive Order 13514, which requires federal agencies to inventory, track, and reduce greenhouse gas emissions associated with federal facilities and activities. The study also identifies renewable energy options in accordance with the Secretary of the Interior's order, elevating the production, development, and delivery of renewable energy as a top Department priority. The study is scheduled to be complete in the summer of 2014.



The data from these monitoring efforts will be made publically available ...

## BLM Utah Partners to Inventory and Monitor Air Quality and Climate Data - Utah

BLM Utah continued to implement a wide-ranging air resource management and climate change indicator monitoring program in Utah in fiscal year 2013. The BLM worked in concert with the Utah Department of Environmental Quality, Environmental Protection Agency, and other public and private partners to install and operate air and climate monitoring equipment across the state. The data from these

monitoring efforts will be made publically available through the following web page ([http://www.blm.gov/ut/st/en/prog/more/air\\_quality.html](http://www.blm.gov/ut/st/en/prog/more/air_quality.html)) and in yearly management reports. The goal of the project is to inventory, protect, and manage air resources while providing for responsible multiple use of Utah's public lands.

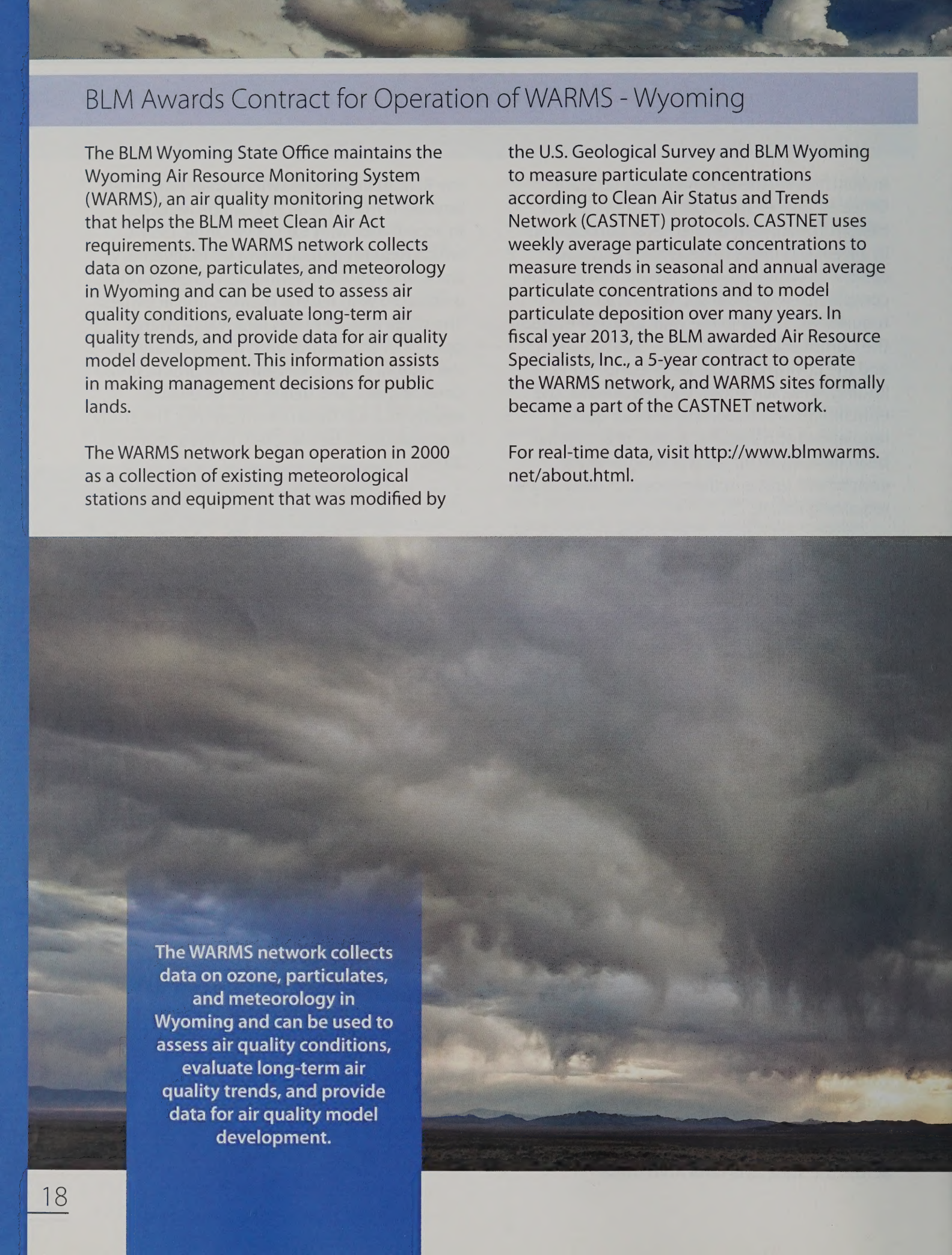
## BLM Awards Contract for Operation of WARMS - Wyoming

The BLM Wyoming State Office maintains the Wyoming Air Resource Monitoring System (WARMS), an air quality monitoring network that helps the BLM meet Clean Air Act requirements. The WARMS network collects data on ozone, particulates, and meteorology in Wyoming and can be used to assess air quality conditions, evaluate long-term air quality trends, and provide data for air quality model development. This information assists in making management decisions for public lands.

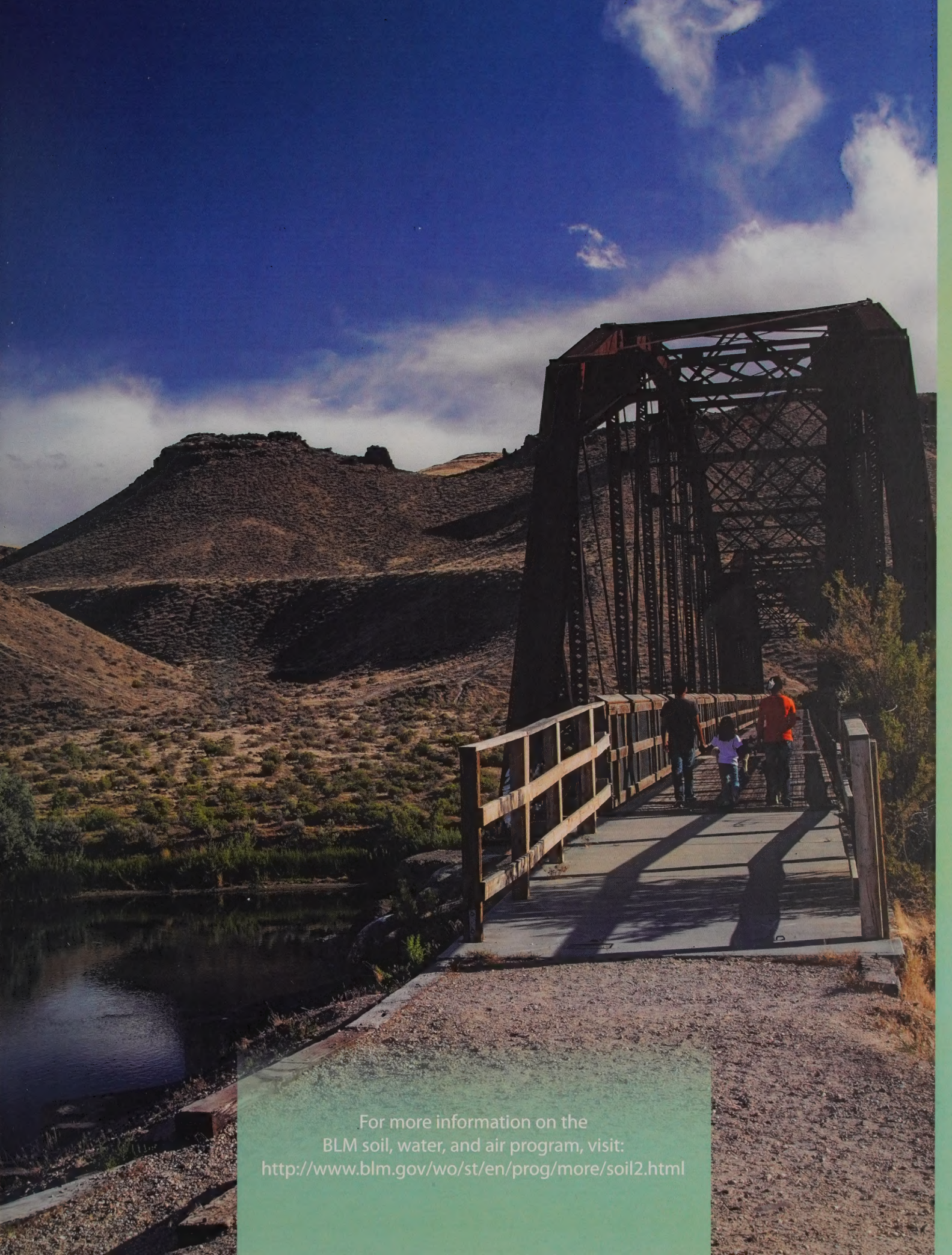
The WARMS network began operation in 2000 as a collection of existing meteorological stations and equipment that was modified by

the U.S. Geological Survey and BLM Wyoming to measure particulate concentrations according to Clean Air Status and Trends Network (CASTNET) protocols. CASTNET uses weekly average particulate concentrations to measure trends in seasonal and annual average particulate concentrations and to model particulate deposition over many years. In fiscal year 2013, the BLM awarded Air Resource Specialists, Inc., a 5-year contract to operate the WARMS network, and WARMS sites formally became a part of the CASTNET network.

For real-time data, visit <http://www.blmwarms.net/about.html>.



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For more information on the  
BLM soil, water, and air program, visit:  
<http://www.blm.gov/wo/st/en/prog/more/soil2.html>

